

ABSTRACT

This specification discloses an optimization system that uses a plug-in optimizer, such as a Genetic Algorithm and Simulated Annealing optimization algorithm. The optimization system may be run from a GUI, including remotely from a centralized computing cluster or other server. The optimization can be Internet-based, and may include O-cubed processing and multiple model averaging, providing enhanced robustness. The optimization GUI also provides multiple views of data output files, such as Pickfiles, Hitfiles, and velocity model files in seismic applications. The optimization system also provides the ability to analyze and constrain particular areas of the optimization model as well as alter the location of data recording devices to analyze the impact of such alteration on data procurement or the optimization model. A fee-for-service-based optimization business model and others can be provided with the disclosed systems and methods.

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